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# Notes on New England Marine Algae—VII.

By Frank S. Collins.

(Plate ——.)

Lyngbya gracilis (Meneg.) Rab.; Gomont, Monographie des Oscillarieés, 144. *pl. 2, fig. 20.*

A small species, 5–8 $\mu$ in diameter, with slender sheath and cells usually shorter than broad; remarkable for the color, which is a purplish red, the living plant under the microscope reminding one of a very minute *Bangia.* I found it in July, 1896, at Cape Rosier, Maine, among other algæ on a mooring buoy that had been hauled up on the beach.

Spirulina versicolor Cohn; Gomont, Monographie des Oscillarieés, 273.

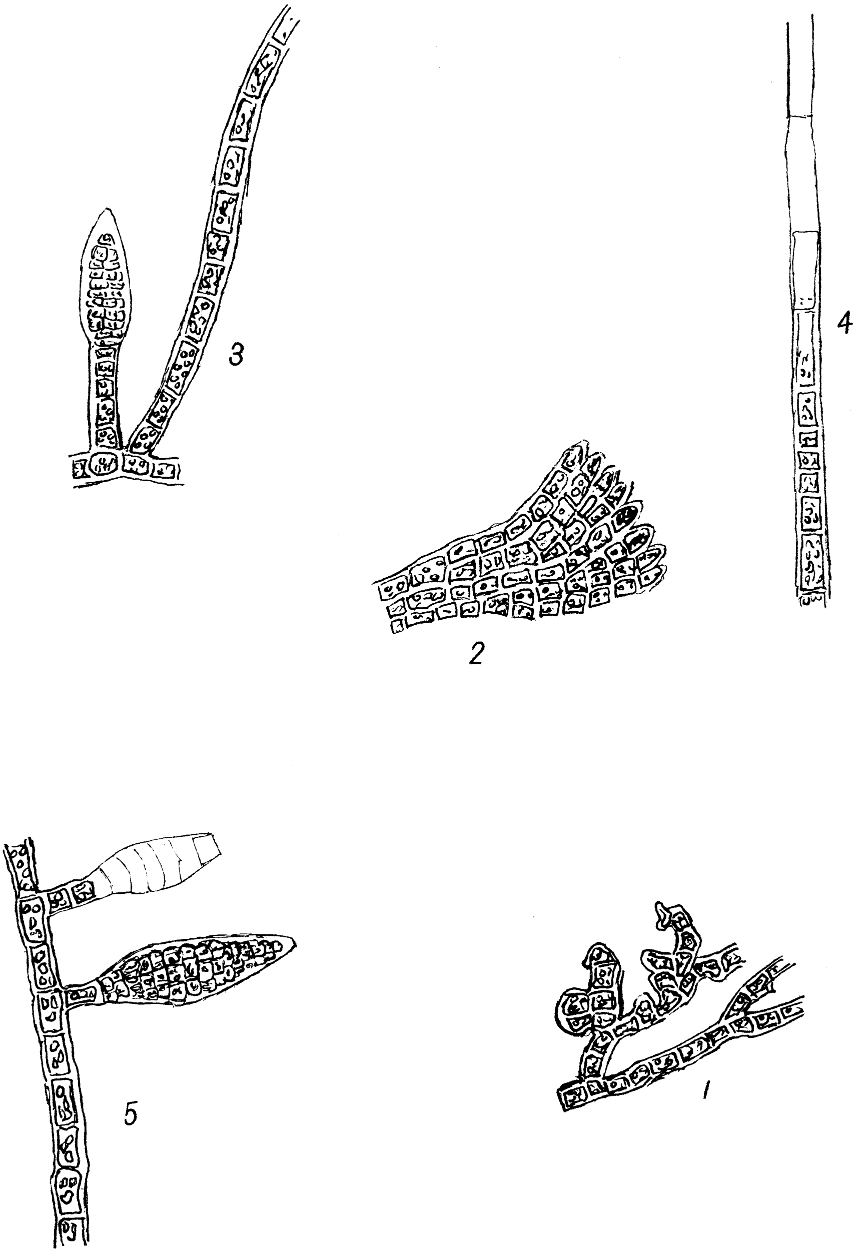
The trichomes are much like the common *S. subsalsa* Oersted, but the spiral is denser and more regular. The color is very distinct, a dark purple in the stratum, and a rosy purple in the trichome. In the dried specimen this color disappears almost entirely, giving place to the usual light green of the genus. Found at Cape Rosier, on the mooring buoy, with the *Lyngbya* mentioned above.

These two species just mentioned are, as far as I know, the only marine Nostochineae of a red color found in America; and it is somewhat interesting that both should have been found at the same time and place. The object on which they grew gives somewhat unusual conditions for the growth of algae; practically uniform depth combined with considerable movement of the water. It would hardly be safe to draw the conclusion that these conditions tended to produce the exceptional color, but it is of interest to note that the localities given by Gomont for both species are in the Mediterranean, Adriatic and Baltic, in all of which the tidal movement is quite small.

Enteromorpha minima Naeg. in Kuetz. Sp. Alg. 482.

A small species, somewhat resembling *E. micrococca* Kuetz., but with larger cells, 5–7 $\mu$ diam. In *E. micrococca* the cell-wall is much thickened, especially on the inside, while in the present

BULLETIN OF THE TORREY BOTANICAL CLUB. PLATE 278.



PHYCOCELIS MACULANS COLLINS.

species there is no perceptible thickening, and the frond is only about 8–9 μ thick, as against 18 μ in *E. micrococca.* In consequence of this *E. minima* is softer and more flaccid than the other species. Found at half-tide mark, on the shore of Spectacle Island, Penobscot Bay, Maine, July, 1896.

ECTOCARPUS OVATUS Kjellman, Om Spetsbergens Thallophyter, Part 2, 35. *E. polycarpus* Kjellm. Skandinaviens Ectocarpeer och Tilopterideer, 93. *pl. 1. f. 5.*

A delicate species, characterized by the ovate plurilocular sporangia 28–52 μ long, 18–28 μ broad, sessile on the branches and opposite to each other or to a branch. Found at Edgartown, Mass., by Miss Colt, Feb., 1892.

SOROCARPUS UVAEFORMIS Pringsheim, Beiträge zur Morphologie der Meeresalgen, 12. *pl. 3. f. 1–8.*

Habit of *Ectocarpus*, differing in having the plurilocular sporangia in dense masses, usually at the bases of the branches. Found at Martha's Vineyard, Mass., by Miss Colt, in 1892.

### PHYCOCELIS MACULANS n. sp.

Basal layer of radiating densely packed dichotomous somewhat irregular filaments, cells 12–14 μ diam.; vertical filaments simple, 14–16 μ diam., terminating in a colorless hair; plurilocular sporangia ovate-lanceolate, 50-60 x 18–25 μ, either terminal on few-celled filaments rising from the basal layer, or more commonly lateral on the longer erect filaments, and either sessile or on a one–several-celled pedicel.

In early stages the basal filaments are quite irregular in shape and branching, but when fully developed, form a regular circular disk, which, however, separates easily into fan-shaped segments. The erect filaments are long, straight, not tapering, with cells in the lower part one or two diameters in length; at the place of growth, in the upper part of the filament, the cells are quite short, and above this point they are much longer, and nearly or quite colorless. Short filaments bearing plurilocular sporangia may arise from any part of the basal layer; but more commonly sporangia are borne on the long erect filaments, and are either sessile or shortly pedicelled. One or several may be borne on a filament; in the latter case they are usually secund, but sometimes alternate; they issue about at right angles to the filament, and are usually produced a short distance below the point of growth.

Found growing on *Rhodymenia palmata* Grev., in company with other epiphytic algae, in a warm shallow tidepool on Spectacle Island, Penobscot Bay, Maine, from July to September, 1894 to 1896. Distributed in Collins, Holden and Setchell, Phycotheca Boreali-Americana, No. 274.

PHYLLITIS ZOSTERIFOLIA Reinke, Algenflora der Westlichen Ostsee, 62.

Distinguished from the common *P. fascia* Kuetz. by the very narrow, strictly linear frond. *P. fascia* varies much in width, but even the narrowest forms broaden upward, and are proportionally much wider than those of this species, which may attain a length of 3 dm, with a width of hardly 5 mm. After one has recognized the plant there is no danger of mistaking for it any of the numerous forms of *P. fascia;* which moreover is essentially a winter and spring plant, while *P. zosterifolia* is a plant of the summer months. Collected at Magnolia, Mass., at extreme low-water mark, by Miss Cora H. Clarke, August, 1896. Distributed in Collins, Holden & Setchell, Phycotheca Boreali-Americana, no. 277.

LEPTONEMA FASCICULATUM Reinke, Atlas Deutscher Meeresalgen, 13, *pl. 31.*

The filaments resemble those of a small *Elachista*, and grow in similar tufts, branching only at the base, where are situated the ovate unilocular sporangia. The plurilocular sporangia, which form the principal characteristic of the genus, may be formed from any of the intercalary cells, but occur mostly in the upper part of the filament; the cell grows in a direction at right angles with the length of the filament, forming rather few-celled, usually pointed sporangia. Found at Spectacle Island, Penobscot Bay, Maine, September 2, 1894, growing on *Rhodymenia palmata* Grev., in a tide pool; a form corresponding to var. *majus* Reinke, l. c., the abundant sporangia occurring through the whole length of the nearly straight filament, and pointing in all directions.

DICTYOSIPHON HISPIDUS Kjellman, Algae of the Arctic Sea, 270.

Resembles a slender, much branched *D. foeniculaceus* Grev., and grows in similar places. Beside the ordinary branches of indefinite growth, the frond is beset with tapering branchlets, 2–4 mm. long; these cover the whole plant, except the base of the main stem and of the larger branches in old plants, from which they have apparently fallen off. The main stem is hollow, and the branches become hollow at an earlier stage of growth than in *D. foeniculaceus*: the sporangia are smaller than in the latter. Originally described as a form of *D. foeniculaceus*, it is now generally recognized as a good species. My specimens, collected at Nahant, Mass., in June, are of a darker brown in the dried state than European specimens, which are more of an olive color; otherwise they agree well.

ANTITHAMNION BOREALE (Gobi) Kjellman, Algae of the Arctic Sea, 180.

A few small plants growing on *Ptilota pectinata* Kjellm. were thrown upon the shore of Eagle Island, Penobscot Bay, Maine, after a storm in July, 1896. They seem to belong to forma *typica* of Kjellman, and agree quite well with a specimen from northern Norway, received from Foslie. This species might be mistaken for a small form of *A. Americanum* (Harv.) Farl., but the latter is proportionally more slender and has longer cells. *A. boreale* seldom exceeds 3 cm. in length; the ultimate branches are secund oftener than opposite. *A. Americanum* is a plant of early spring; *A. boreale* of late summer and autumn.

RHODOMELA VIRGATA Kjellman, Algae of the Arctic Sea, 110. *pl.* 7.

This species in its sterile state is hardly to be distinguished from *R. subfusca* Ag., the latter being, however, somewhat more densely and decompoundly branched. The distinction in fruit is strongly marked; in *R. subfusca* the tetraspores are formed in spring, in the slender terminal branches, which often become somewhat moniliform. In *R. virgata* they are found in winter, in short, densely branching ramuli, which issue without much order from the main stem and branches; cystocarps and antheridia occur in similar situations. Both these forms of fruit have long been known, but both have been supposed to belong to *R. subfusca;* see Harvey, Nereis Boreali-Americana, Part 2, 26. The distinctions of the two species are shown in detail by Kjellman, l. c. Probably common, but to be distinguished with certainty only when fruiting, which occurs chiefly in December and January. Found at Revere Beach, Mass., by the writer; at Martha's Vineyard by Miss L. E. Jernegan.

POLYSIPHONIA VESTITA J. Ag. Algae Mediterraneae, 133; Species Algarum, 2: 987.

To this species I refer a plant from Martha's Vineyard, collected by Miss L. E. Jernegan. It is four-tubed, somewhat corticated below, with long patent branches, which are repeatedly branched and have a somewhat pyramidal outline. The whole plant is beset with short tufts of very fine and soft branching ramuli; in the older parts distant, in the younger closely set; color reddish purple. The specimen does not agree with any of the species credited to this coast, but is quite like the *P. vestita* of J. G. Agardh, as represented by a specimen from Hauck's herbarium; the *P. vestita* of Kuetzing is a different species.

Unless otherwise noted, all the species mentioned above were collected by the writer.

### Explanation of Plate 278.

*Phycocelis maculans* Collins.

Fig. 1. Basal filaments at an early stage of growth. Fig. 2. Portion of fully developed basal disk. Fig. 3. Short, erect filament with terminal sporangium, and lower part of long erect filament, both arising from basal layer. Fig. 4. Upper portion of erect filament. Fig. 5. Portion of erect filament with two lateral sporangia, one of them emptied.

## Reviews.

*The Nursery Book.* By Prof. L. H. Bailey. pp. 365. *figs. 152.* The Macmillan Company, New York. Price $1.00.

This is a very comprehensive, compact and lucid description of all the various modes of propagation of plants, not only belonging to the nursery proper, but takes in the denizens of the herbaceous garden, greenhouse, and all plants usually found on either commercial or private grounds; it is profusely illustrated, showing very minutely the best methods of seed testing, the sowing of